

Response to Final Office Action

Application No. 10/544,180

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**AMENDMENTS TO THE SPECIFICATION**

Please amend the title as follows:

NUCLEIC ACIDS ENCODING A GALACTURONOSYL TRANSFERASE ENZYME  
(GALAT1) FROM ARABIDOPSIS

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Please amend the abstract as follows:

The invention provides an isolated nucleic acid molecule encoding the polypeptide GALAT1 having galacturonosyltransferase (GalAT) activity. The Arabidopsis GALAT1 sequence (~~SEQ ID NO:1~~) disclosed represents the first pectin biosynthetic glycosyltransferase gene isolated from plants. The invention further provides 14 GALAT and 10 GALAT-like gene superfamily members. The identification of the GALAT gene superfamily offers new opportunities to modulate pectin synthesis *in vivo* and *in vitro* by modulating the GALAT gene, for example, transgenic plants that produce modified pectins can be generated by altering the GALAT gene. Since modified pectins are predicted to affect plant growth, development, and plant defense responses, the transgenic plants are expected to have improved agricultural value. The modified pectins isolated from such transgenic plants are useful as gelling and stabilizing agents in the food, neutraceutical, and pharmaceutical industries. The expressed proteins, and variants thereof, of the GALAT superfamily are useful to produce *in vitro* modified pectins of commercial value.